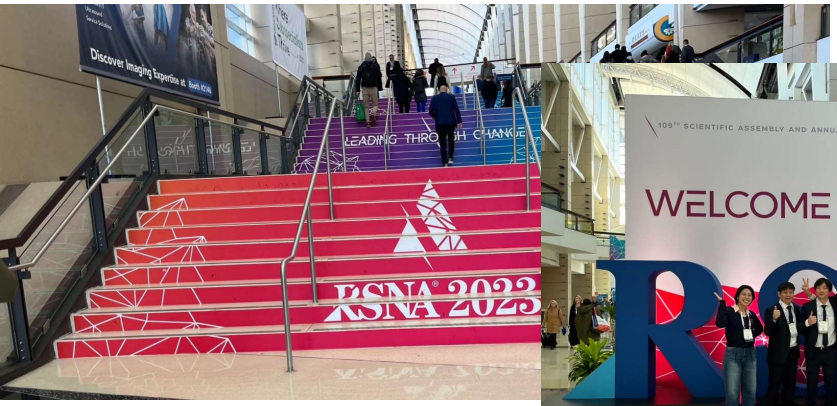
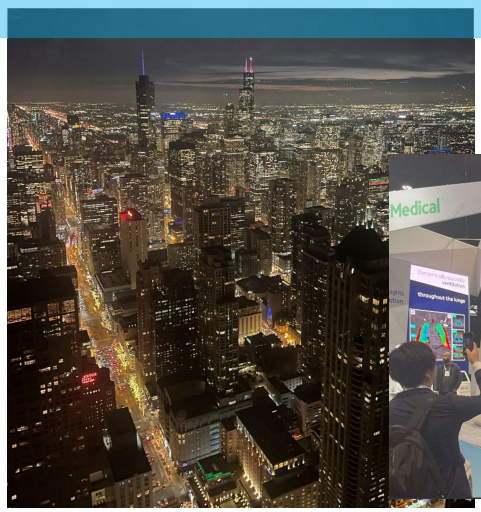
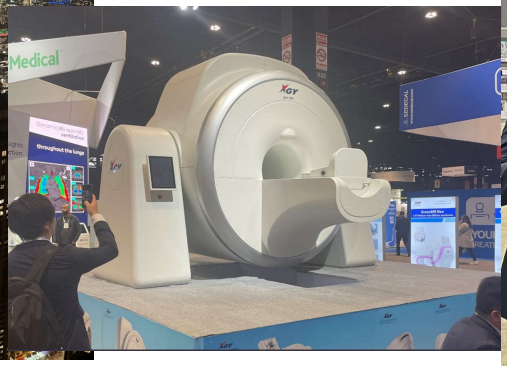


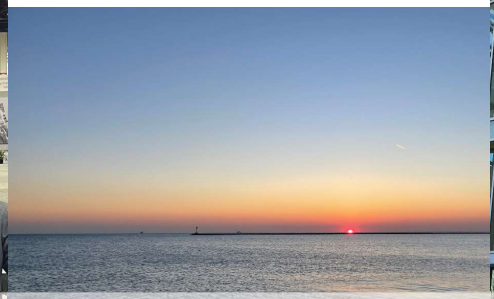
2025年度 中国・四国支部 国際化推進セミナー

2025年11月29日

RSNAの発表を経験して







社会医療法人 鴻仁会 岡山中央病院
診療技術部 診療放射線科　上堀内善紀

自己紹介

＜略歴＞

平成25年3月　岡山大学医学部保健学科放射線技術科学専攻　卒業

平成25年4月　岡山中央病院　診療放射線技師として入職

平成30年4月　同施設　診療技術部　放射線科リーダー

＜主な保有資格等＞

・診療放射線技師

・第1種作業環境測定士

＜発表経験＞

国内・第79回　日本放射線技術学会総会学術大会

　　・第81回　日本放射線技術学会総会学術大会

海外・第109回　Radiological Society of North America

施設紹介　岡山中央病院

〈病床数〉　243床

〈標榜科目〉

泌尿器科、産婦人科、内科、消化器内科、循環器内科、脳神経内科、
外科、乳腺外科、整形外科、脳神経外科、救急科、放射線科、麻酔科、
形成外科、眼科、回復期リハビリテーション 科、腎臓内科、
緩和ケア内科、総合診療科、皮膚科

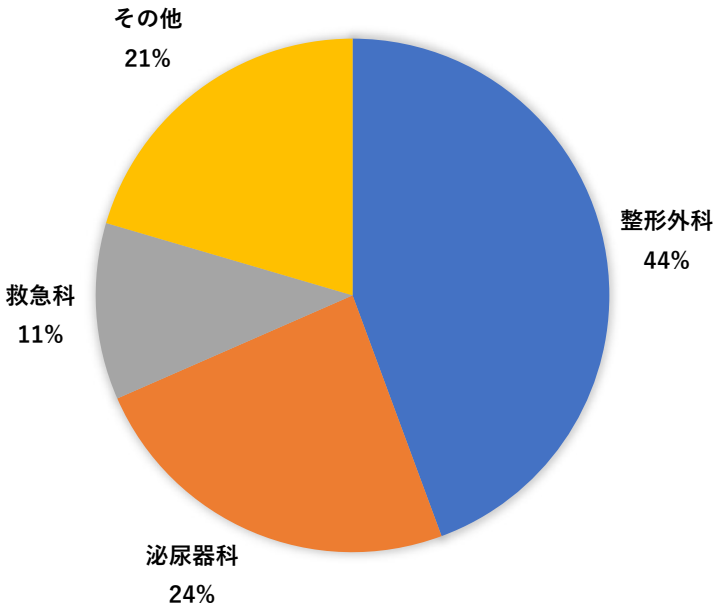
〈関連施設〉　セントラル・クリニック伊島

- 診療放射線技師　１４名（パート２名含む）
- 放射線診断医　１名
- 放射線治療医　２名

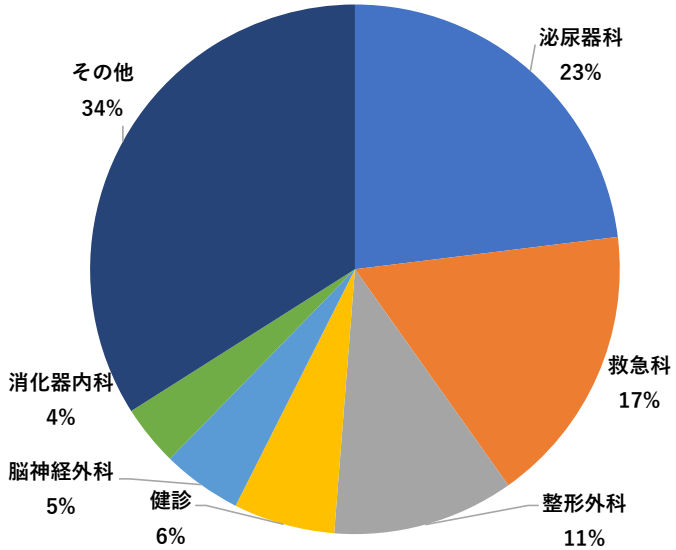
一般撮影装置　4台	/	ポータブル装置　2台
CT装置（80列）　1台	/	MRI装置（３T）　1台
RI装置　1台	/	DEXA装置　1台
カテ装置　1台	/	Cアーム　4台
放射線治療機　1台	/	その他関連施設装置

年間検査件数（2024年度）

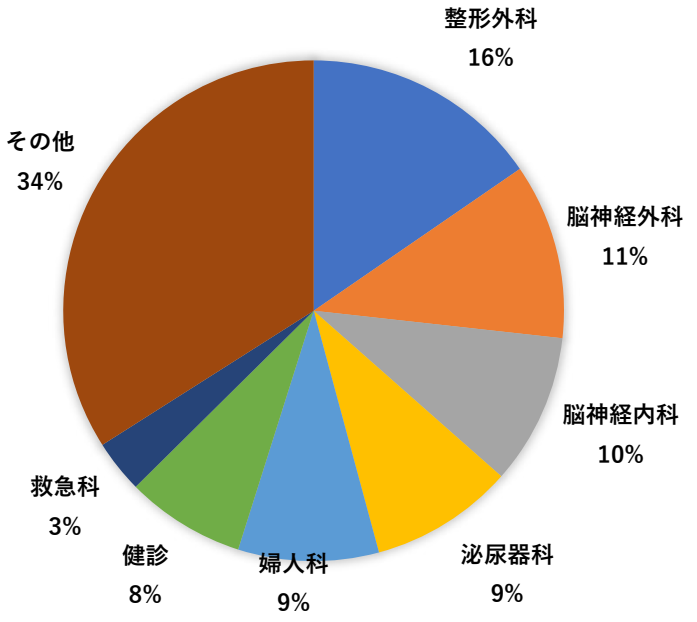
一般撮影　16,776件



CT　8,901件



MRI　5,046件



国際学会参加へのプロセス

国際学会挑戦の背景

- なんとなく学会発表への憧れ
  周囲や大学の同期のが挑戦している姿がかっこいい！！！
- 上司に勧められたことがスタート
  川崎医療福祉大学 講師 舛田隆則先生に勧められ、研究開始
- 日本放射線技術学会総会学術大会後の一言
  「国際学会にも1度出してみたら？」
- 英語への不安と国際学会の魅力
  海外への恐怖と海外発表への興味

RSNAとは

- Radiological Society of North America（北米放射線学会）
- 毎年11月末～12月上旬にアメリカのイリノイ州シカゴで開催される放射線学術集会および最新の放射線機器展示会
- 2023年大会は世界中から約3万4千人の放射線技師や放射線科医、医学物理士などが参加
- 会場となるMcCormic Placeは総面積約46755㎡で東京ドーム5個分の広さ
- 応募演題数は約11000演題　（採択率は3割程）


North
Building
機器展示
Lake side
発表会場
West
Building
South
Building
イースト 21st ストリート
イースト・セルマック・ロード
サウス・インディアナ・アベニュー
サウス・ミシガン・アベニュー
サウス・キング・ドライブ
McCormick Place
Bird Sanctuary
Advocate Sykes
Outpatient Center
医療センター
41
55

学術プログラム

- plenary sessions：7セッション
- Scientific Paper：851題（19分野）
- Education Course：300以上
- Education Exhibit：1654題
- Scientific Poster：1419題
- Learning Center Theater：150題

●機器展示　670社

スケジュール

- 5/2 ・抄録提出期限
- 7/18 ・合格発表
- 10/30 ・参加登録期限
- 11/8 ・演題登録期限
- 11/26-30 ・RSNA

English

抄録

タ

2400文字以内

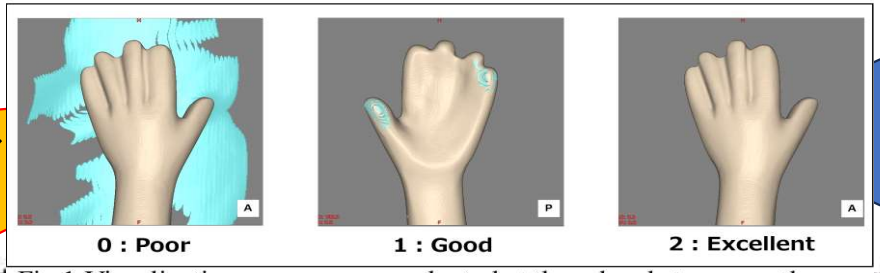


Fig.1 Visualization scores were evaluated at three levels to assess the degree of artifacts caused by the CT table mat during 3D image creation

視覚的に
分かりやすく

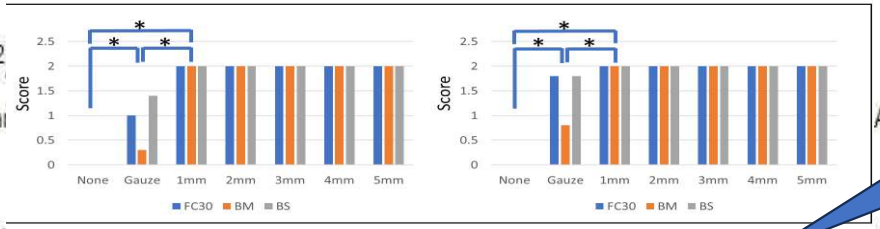


Fig.2 Visualization score

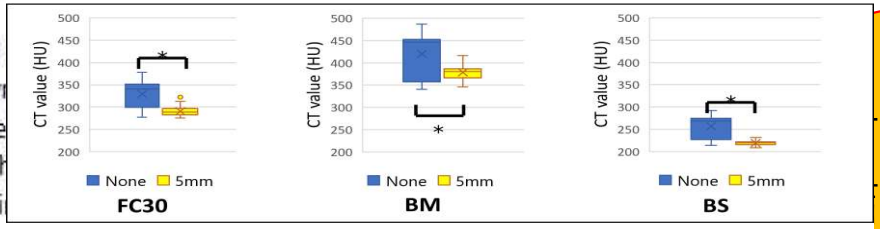


Fig.3 Comparison of maximum CT values of phantom edges

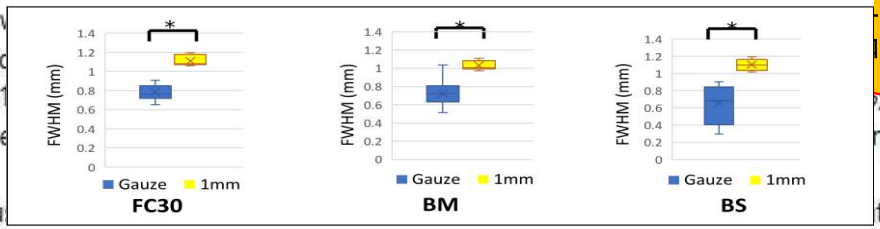


Fig.4 Compared for the FWHM

的
法・使用機器
果
論
床への関連性

Investigation of Buffer Thickness for Reducing Artifact ... **nities Three-Dimensional Imaging**

Author Block: Y. Kamihoriuchi[1], Y. Fujiwara[1], F. Higuchi[2]
[1]Okayama Central Hospital, Okayama-Shi, JAPAN, [2]Okaya... APAN.

Abstract:

***Purpose:** If the hand is directly positioned on the compu... CT table mat due to artefacts from the CT table mat at the three-dimensional (3D) imaging. The objective of this inve... or 3D imaging, to alleviate artifact generation consequent to hand separation from the CT table mat.

***Methods and Materials:** The wrist phantom was placed ... with no buffer (none), one piece of gauze (gauze) and 1, 2, 3, 4 and 5 mm of Sty... itch 0.637, slice thickness 1.0 mm, field of view 150). For the 3D image, we ... AIDR3D mild: FC30, Aice Bone mild: BM, and Aice Bone standard: BS). Th... rofoam buffer. Subsequently, profile curves were measured and the maxi... onducted among three scenarios: no buffer, gauze, and 1 mm buffe... age creation.

***Results:** The results obtained indicate statistically signific... aximum CT values at the phantom edges, the following comparisons ... HU), and BS (none: 269 (227-275) HU, 5 mm: 219 (215-222) HU) (p < 0.05 fo... mm: 1.08 (1.07-1.18) mm), Bone Mild (gauze: 0.72 (0.63-0.81) mm, 1 mm: 1.00 (0.99-1...

***Conclusions:** By inserting a buffer material with a thickne... ng, the separation of the hand and the CT table mat can be achieved easier for regardless of the conditions.

***Clinical Relevance/Application:** It was confirmed that u... facts from the CT table mat, which can improve the quality of 3D imaging of the hand and increase flexibility in positi...

スケ

Status: Accepted for presentatio

Control Number: 8619

Title: *Investigation of Buffer Thick*

Your assigned day/time to stan

Dear Dr. Yoshiki Kamihoriuchi :

I am pleased to inform you that y
Chicago, Illinois. From over 11,00

Requests to add co-authors mu
displayed. Please note, all co-a

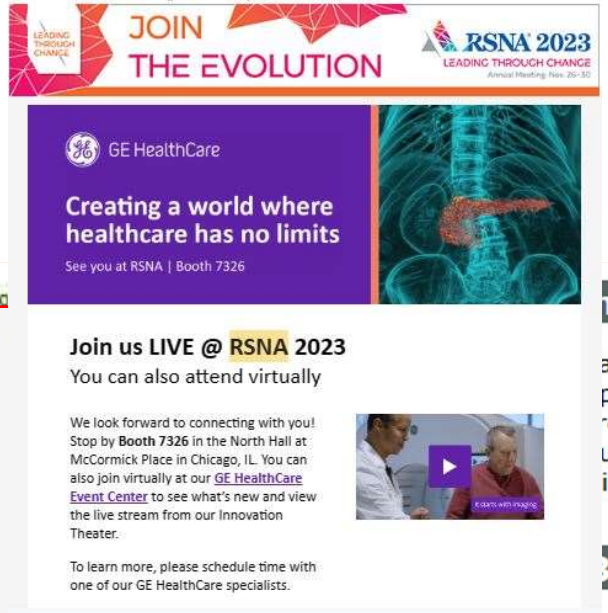
Please note the following impo

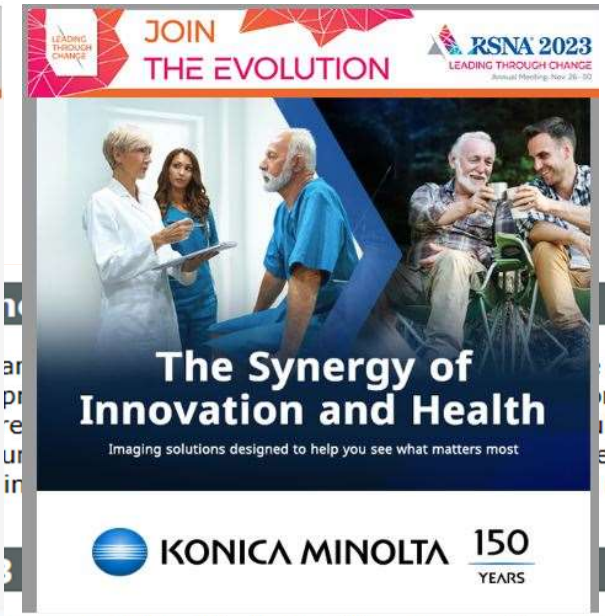
- Registration and Housir
  the physical meeting.
- English is the official language of the RSNA meeting. If you are not comfortable ansv

The Board of Directors and the Annual Meeting Program Planning Committee thank you for your valuable

Sincerely,

Jorge A. Soto, MD
Chair, Annual Meeting Program Planning Committee





Extremities Three-Dimensional
Presenting Author: Yoshiki Kamihoriuch
Date/Time: Nov 26 2023 12:15 - 12:45
Location: Learning Center

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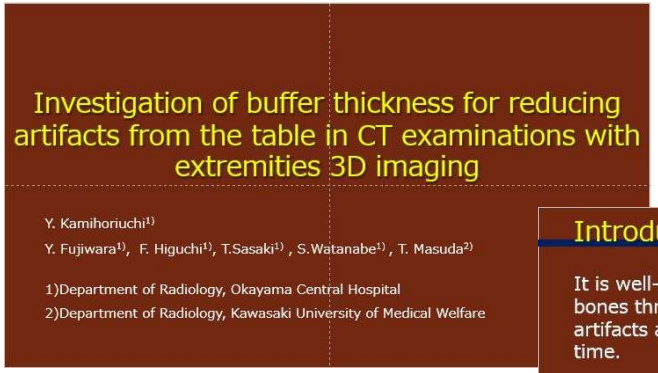
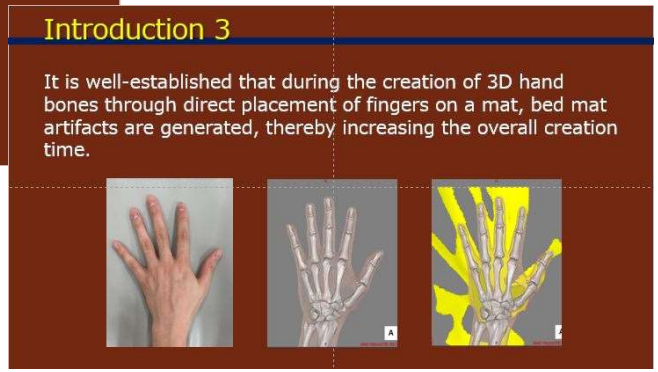
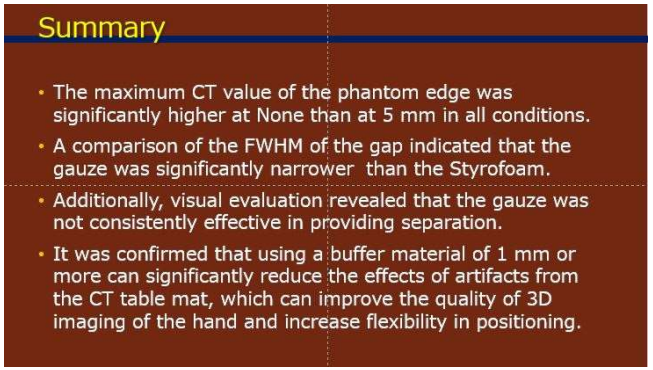
スライド



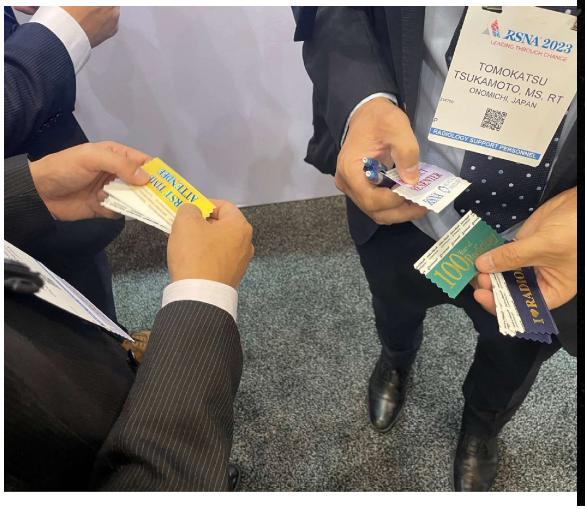


- Power PointまたはPDF
- 最大枚数35枚まで
- 画面サイズ　16:9
- アニメーション、ページ遷移、ハイパーリンク、埋め込みビデオやオーディオなどの機能は使用不可

※オンラインツールを使用すれば、音声ナレーションを録音または追加したりすることは可能



RSNA発表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TSUKAMOTO, MS, RT
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ABSTRACT
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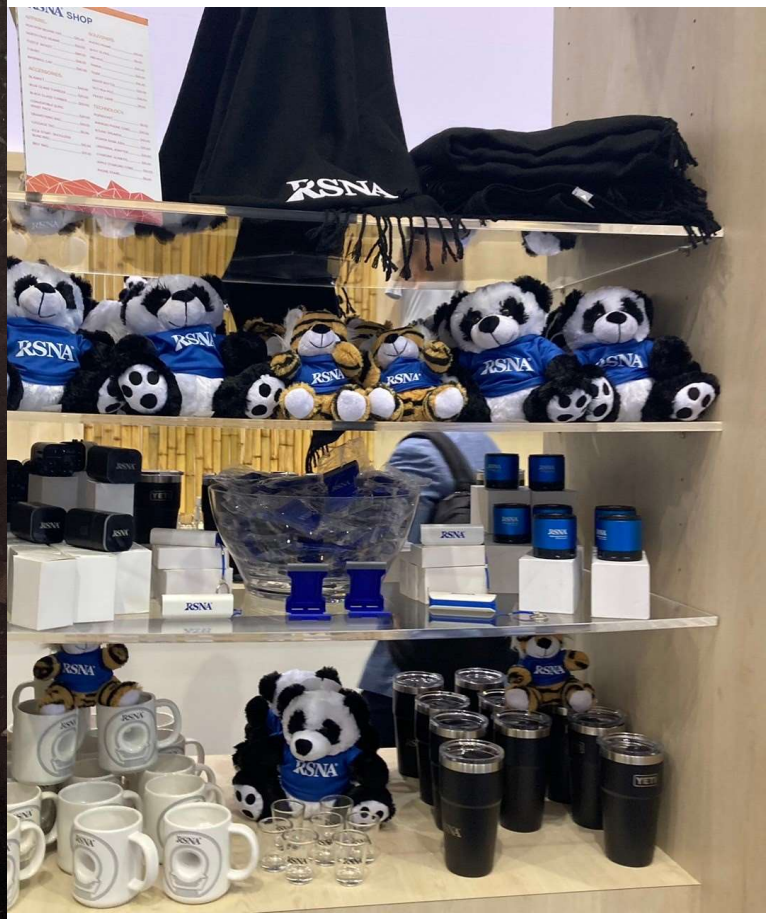
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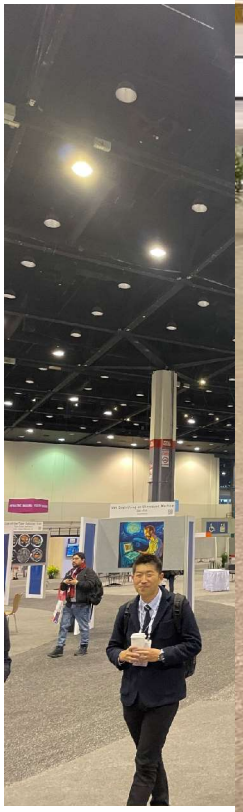
発表




GASTROINTESTINAL
IMAGING
GI
GI
IMAGING
INFORMATICS
DEEP
LEARNING LAB
HEAD & NECK
IMAGING

Investigation of buffer thickness for reducing artifacts from the table in CT examinations with extremities 3D imaging

Y. Kamihoriuchi[1)]

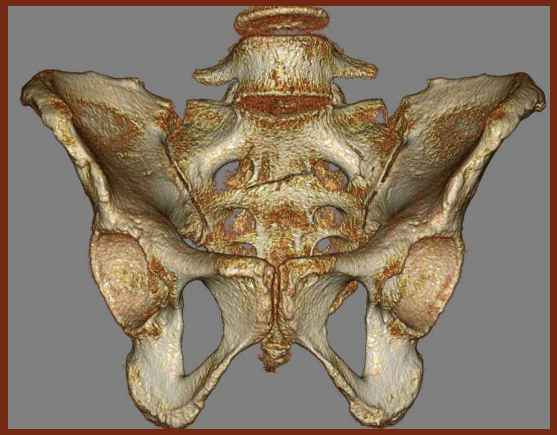
Y. Fujiwara[1)], F. Higuchi[1)], T.Sasaki[1)] , S.Watanabe[1)] , T. Masuda[2)]

1)Department of Radiology, Okayama Central Hospital

2)Department of Radiology, Kawasaki University of Medical Welfare

Introduction 1

Computed tomography (CT) volume data can be utilized to effortlessly generate multi-planar reconstruction(MPR) and volume rendering (VR) images, which serve as beneficial resources for treatment selection and surgical support.

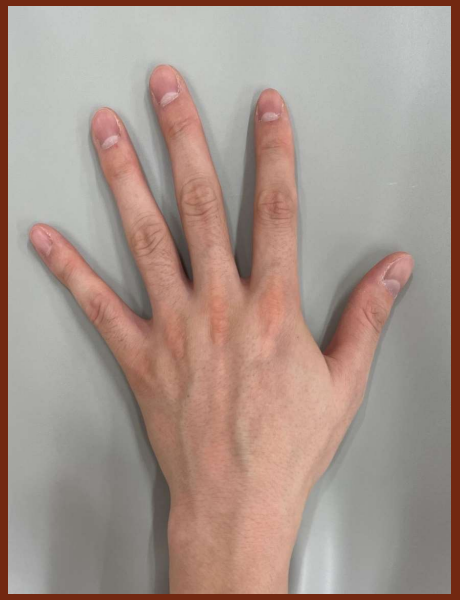


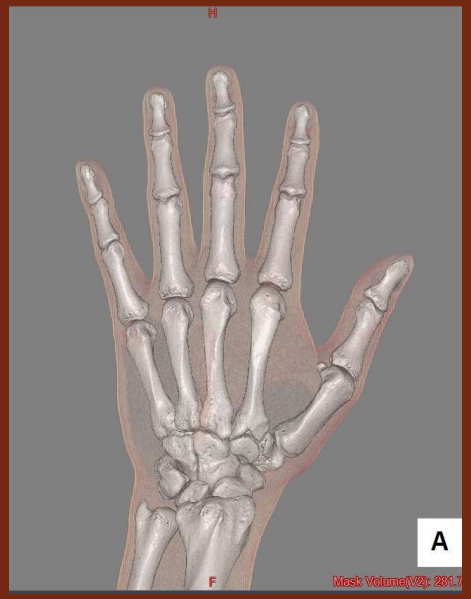
Introduction 2

In trauma examinations, the creation of three dimensional (3D) images can be a valuable tool for confirming the presence, size, and depth of foreign bodies and bones.

Introduction 3

It is well-established that during the creation of 3D hand bones through direct placement of fingers on a mat, bed mat artifacts are generated, thereby increasing the overall creation time.



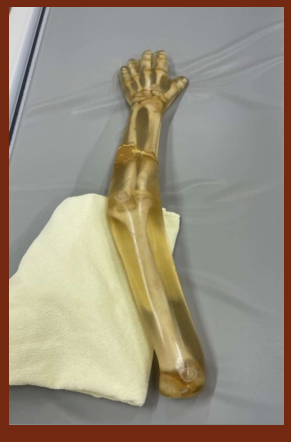


Purpose

The purpose of this study is to investigate the optimal thickness of the buffer material using at the 3D creation, in order to mitigate any artifact generation resulting from the separation of the hand from the CT table mat.

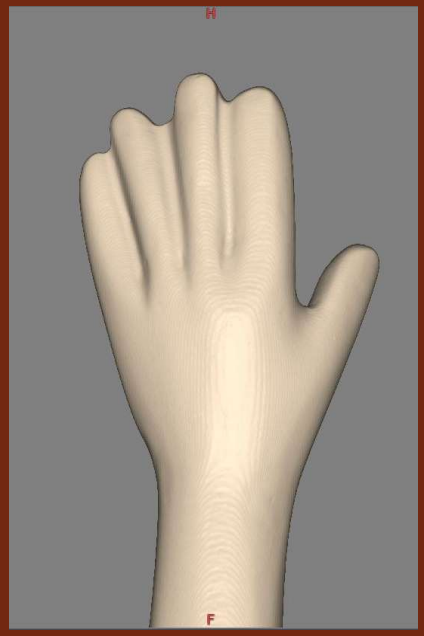
Materials

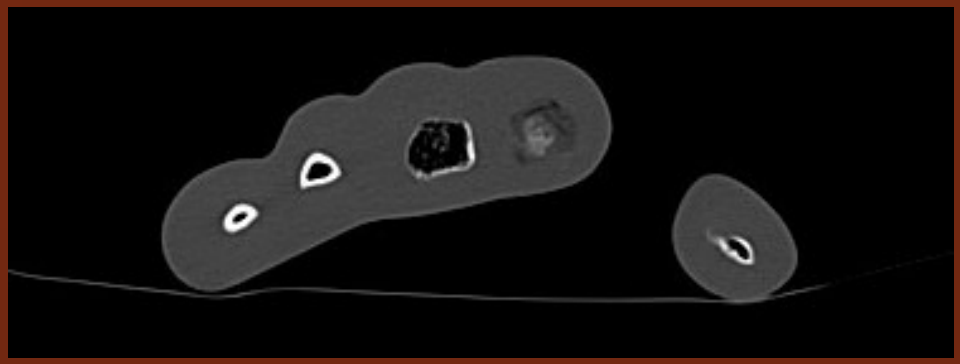
- CT System : Aquilion Prime SP/iEdition (Canon Medical Systems)
- Phantom : Forearm Human Body Phantom (Kyoto Kagaku)
- Buffer : Styrofoam 1, 2, 3, 4, 5mm,and non-woven gauze for medical used
- 3D Workstation : Ziostation2 Plus ver. 2.9.8.4

Method 1: Scan parameter

- Tube voltage : 135 kVp
- Tube current : 100 mA
- Rotation time : 1.0 s
- Helical pitch : 0.637
- Slice thickness : 1.0 mm
- Field of view : 150 mm
- Reconstruction interval : 0.5 mm
- Number of scans : 10





Method 2: Reconstruction

- FC30 AIDR3D mild : FC30

  For Commonly used bone functions.

Iterative Recon.

- Aice Bone mild , Post-processing Filter(+) : BM

  For Bone function used for bone observation in our hospital

- Aice Bone standard , Post-processing Filter(+) : BS

  For Bone function used for 3D in our hospital

Deep Learning Recon.

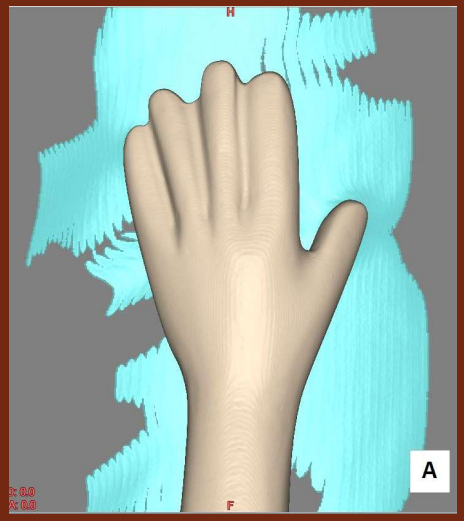
Method 3 : Positioning

- Placement of the phantom in the center of CT gantry
- The phantom's thumb and little finger were positioned on the CT table mat

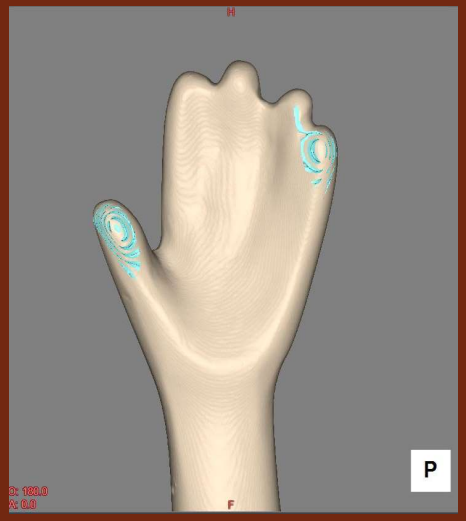
- No buffer （None）
- 1 piece of gauze （Gauze）
- Styrofoam 1, 2, 3, 4, and 5 mm

Method 4: Visual evaluation

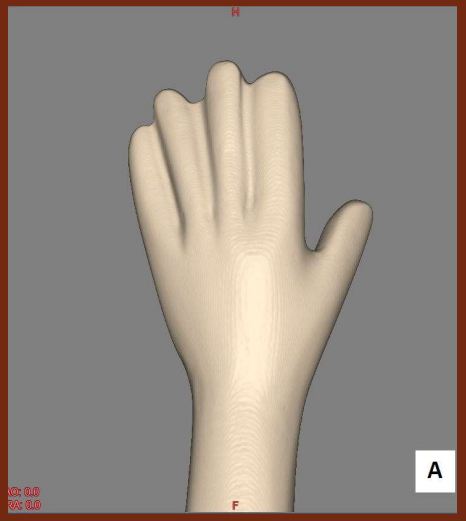
- A radiology technologist with 7 and 9 years of experience qualitatively evaluated in this study.
- Artifacts were evaluated using a 3-point scale at the 0 or 100 threshold.



0 : Poor



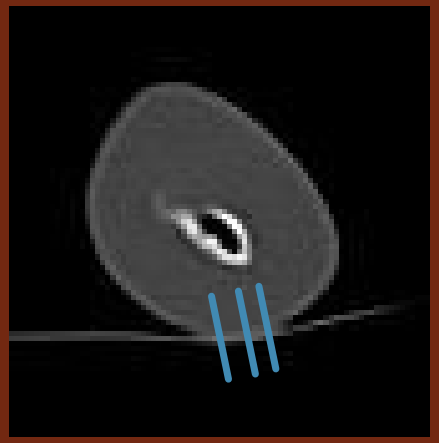
1 : Good

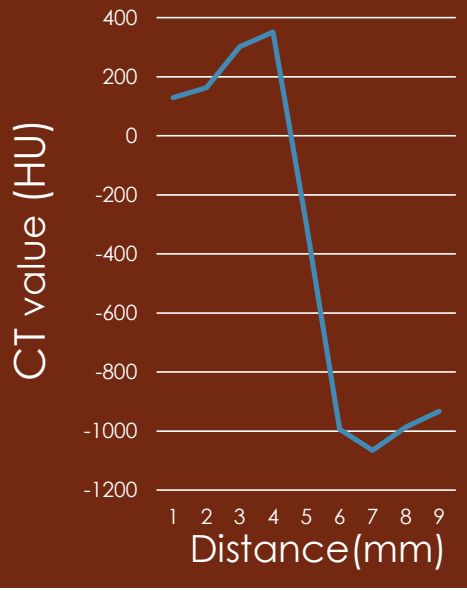


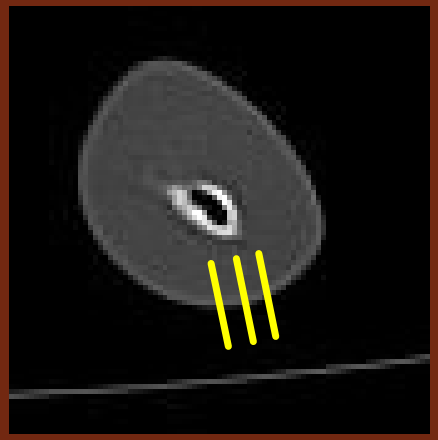
2 : Excellent

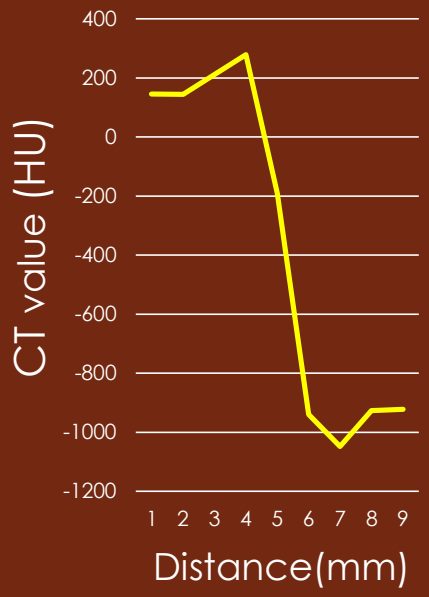
Method 5: Maximum CT values

- Place three region of interest (ROIs) on the same slice of both the unbuffered and 5mm buffered images
- Created profile curves
- Compared for the maximum CT values of phantom edge



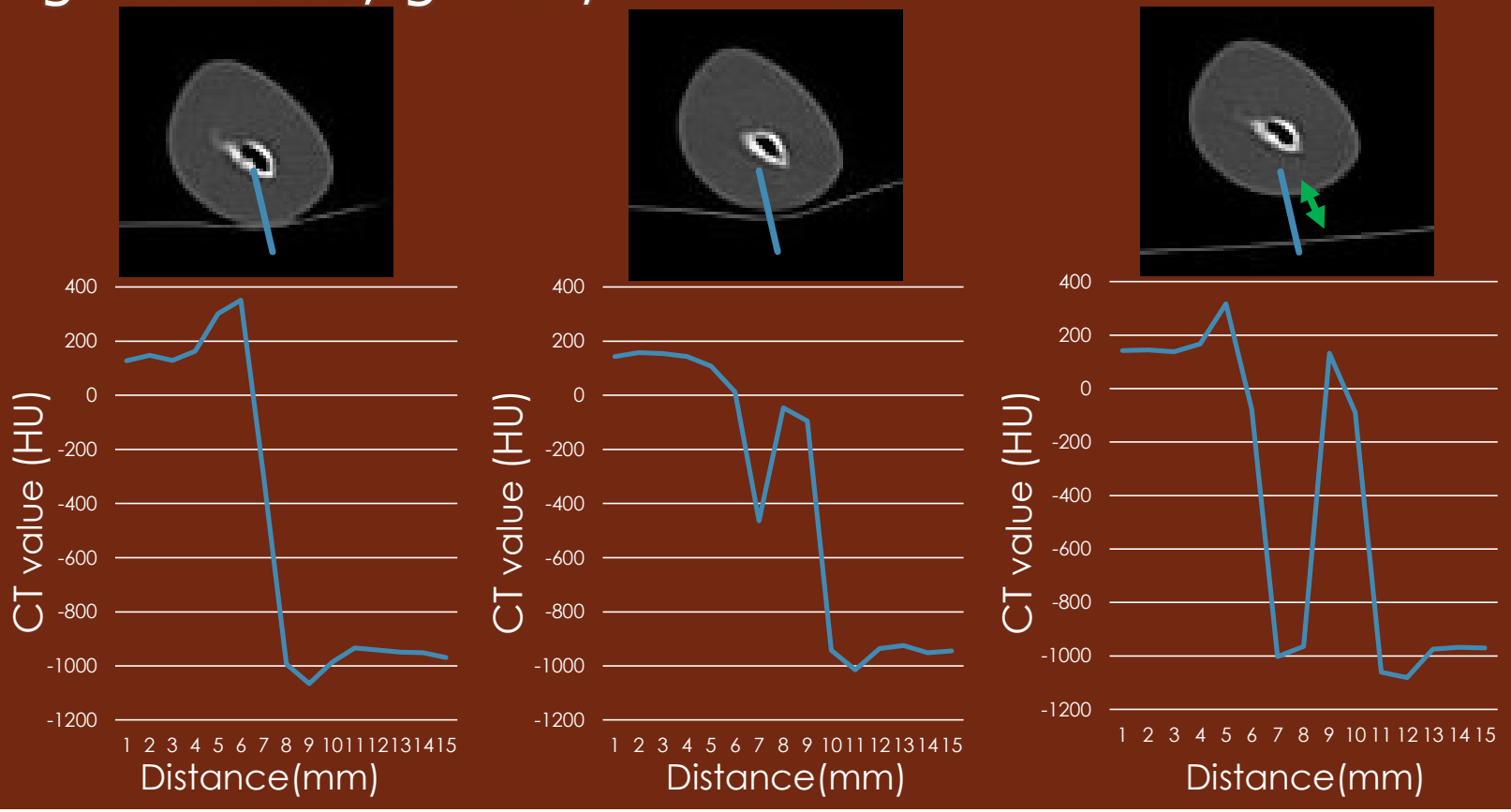






Method 6: FWHM of gap

- Compared for the full width at half maximum (FWHM) among no buffer, gauze, buffer 1mm



Method 7: Statistical analysis

- EZR Ver.1.55

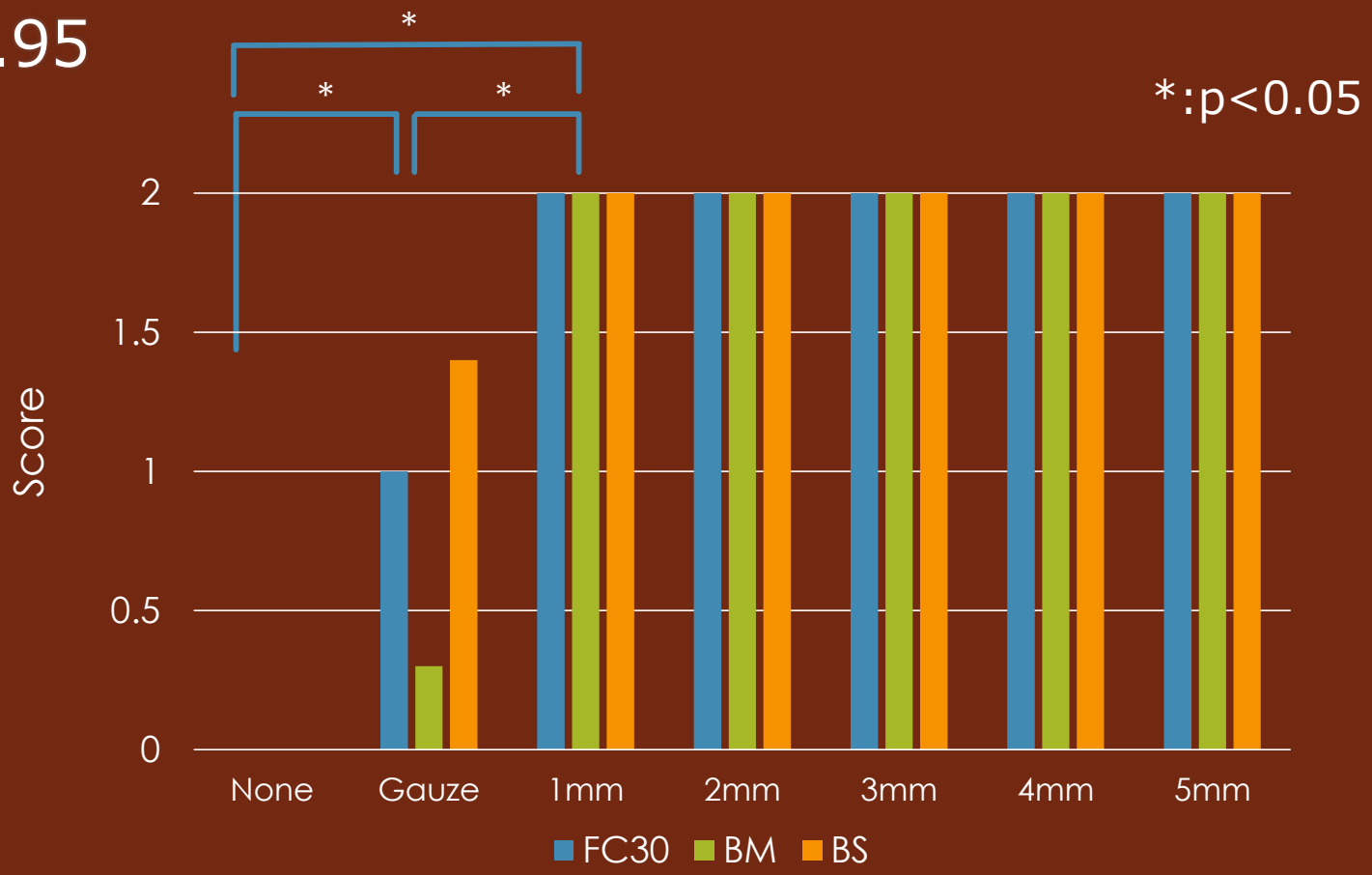
  Kruskal-Wallis test or Mann–Whitney U test

  Differences were considered statistically significant at $p < 0.05$
- Cohen's kappa coefficient

Results 1: Visualization score

Threshold : 0

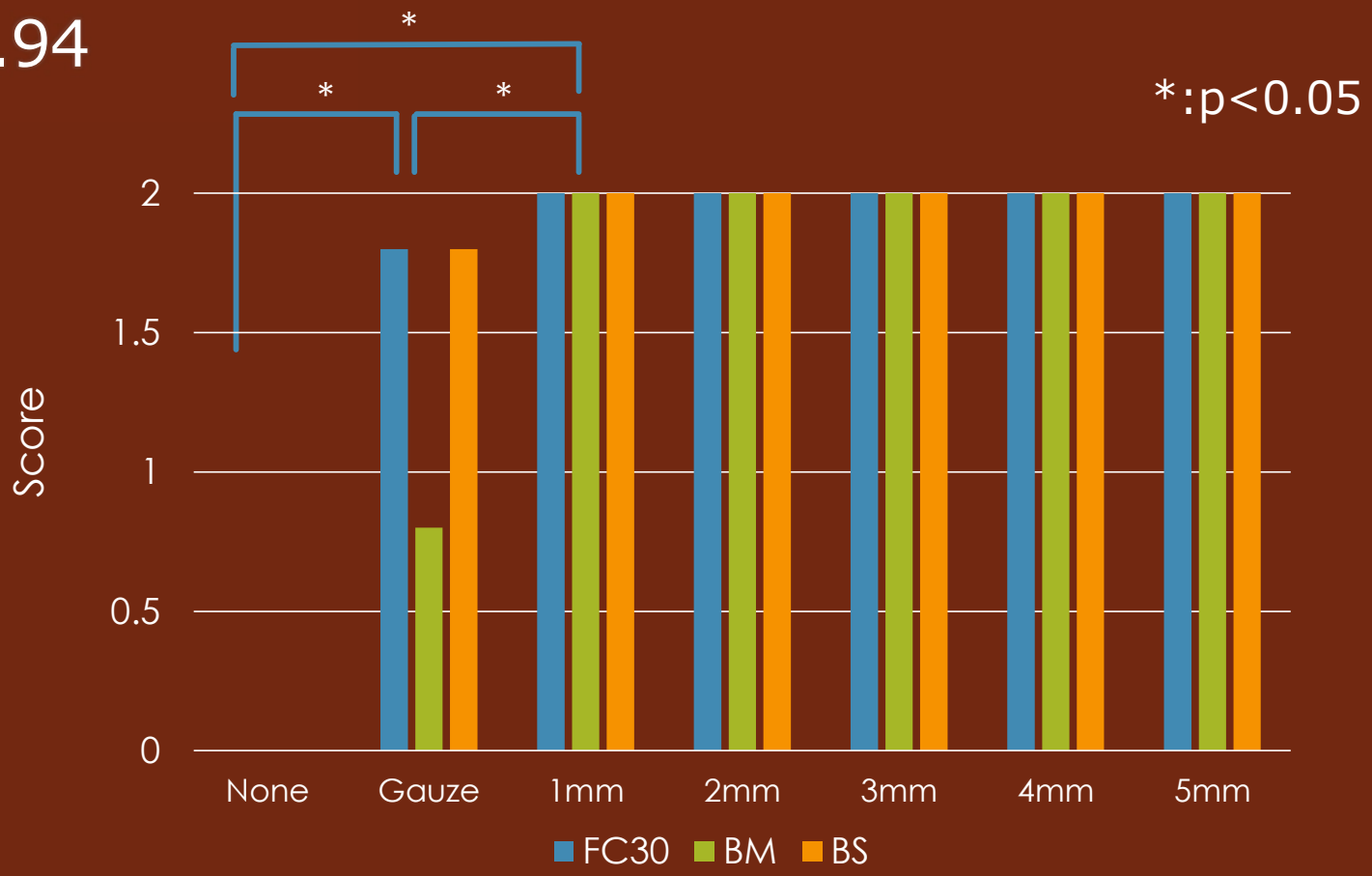
k = 0.95



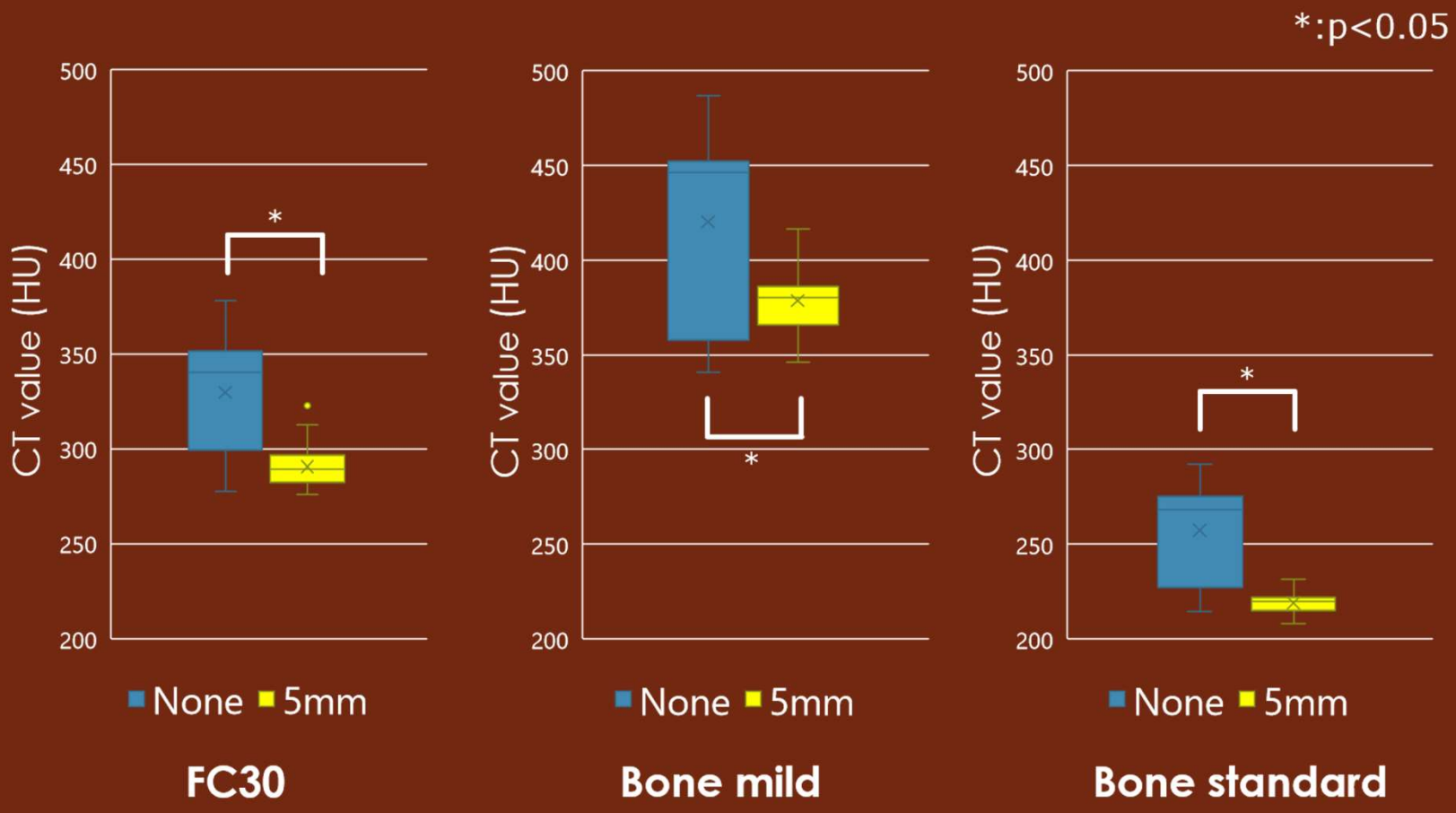
Results 2: Visualization score

Threshold : 100

k = 0.94

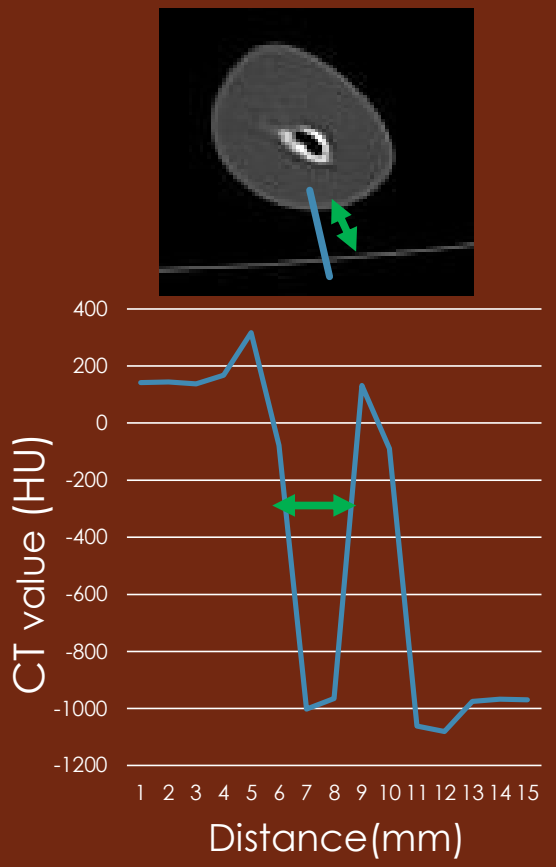


Results 3: Maximum CT values



Results 4: FWHM of gap

	Gauze	1mm	p value
FC30	0.77(0.71-0.85)	1.08(1.07-1.18)	< 0.05
Bone mild	0.72(0.63-0.81)	1.00(0.99-1.08)	< 0.05
Bone standard	0.70(0.41-0.82)	1.10(1.04-1.16)	< 0.05



None : No gaps were detected by the method of this study.

Summary

- The maximum CT value of the phantom edge was significantly higher at None than at 5 mm in all conditions.
- A comparison of the FWHM of the gap indicated that the gauze was significantly narrower than the Styrofoam.
- Additionally, visual evaluation revealed that the gauze was not consistently effective in providing separation.
- It was confirmed that using a buffer material of 1 mm or more can significantly reduce the effects of artifacts from the CT table mat, which can improve the quality of 3D imaging of the hand and increase flexibility in positioning.

Conclusion

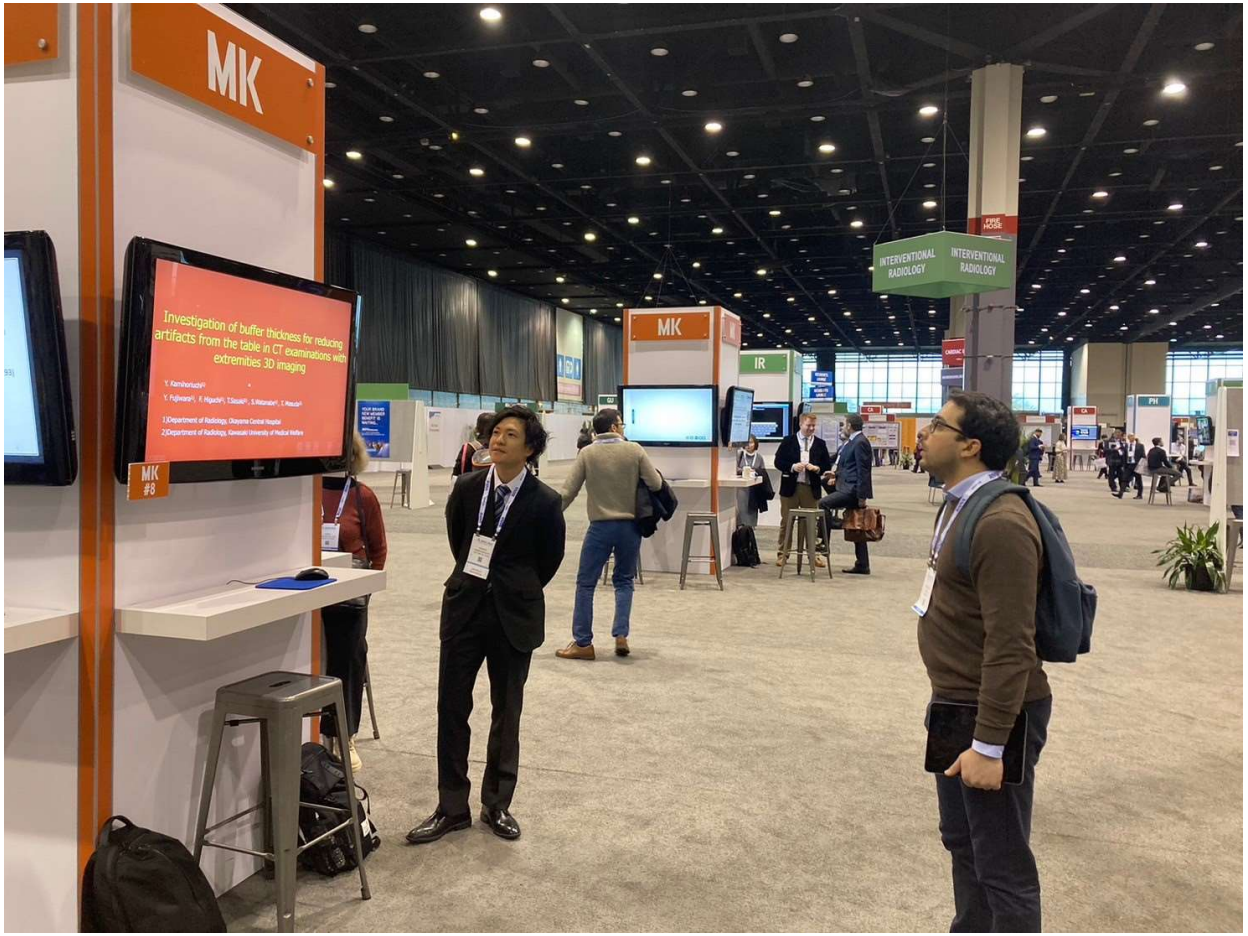
By inserting a buffer material with a thickness of at least 1mm between the hand and the CT table mat at creating 3D imaging, the separation of the hand and the CT table mat can be achieved easier for regardless of the conditions.

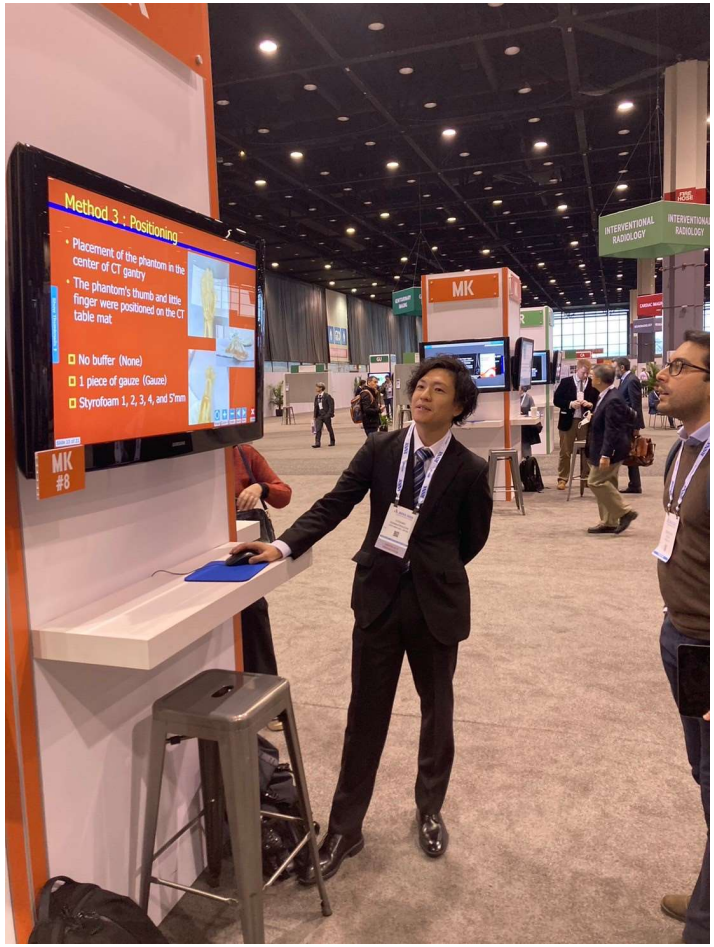
Thank You

- If you have any further questions or comments, please don't hesitate to contact me by e-mail

: y.kamihoriuchi@gmail.com

https://www.kohjin.ne.jp/contact/


MK
Investigation of buffer thickness for reducing artifacts from the table in CT examinations with extremities 3D imaging
MK #8
INTERVENTIONAL RADIOLOGY
INTERVENTIONAL RADIOLOGY
MK
IR

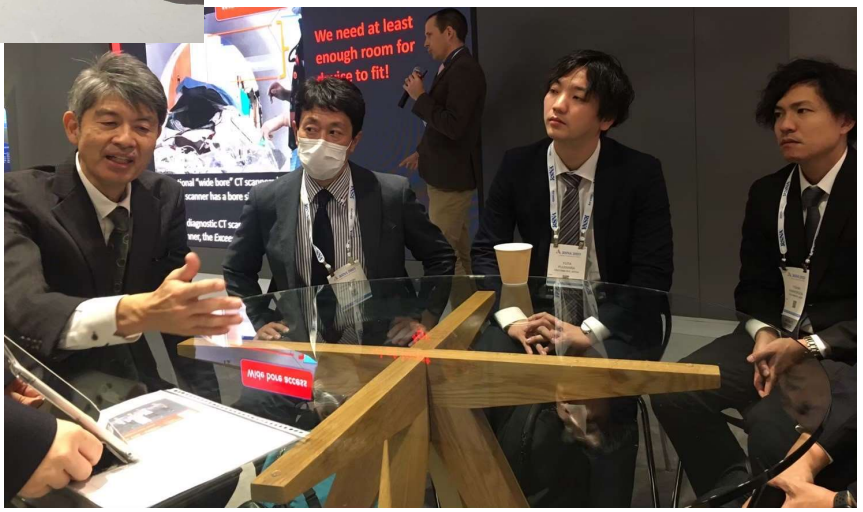

Method 3 : Positioning
• Placement of the phantom in the center of CT gantry
• The phantom's thumb and little finger were positioned on the CT table mat
No buffer (None)
1 piece of gauze (Gauze)
Styrofoam 1, 2, 3, 4, and 5mm
MK #8
MK
INTERVENTIONAL RADIOLOGY


GE HealthCare
Creating a world where healthcare has no limits
Ultrasound


SIEMENS
Healthineers

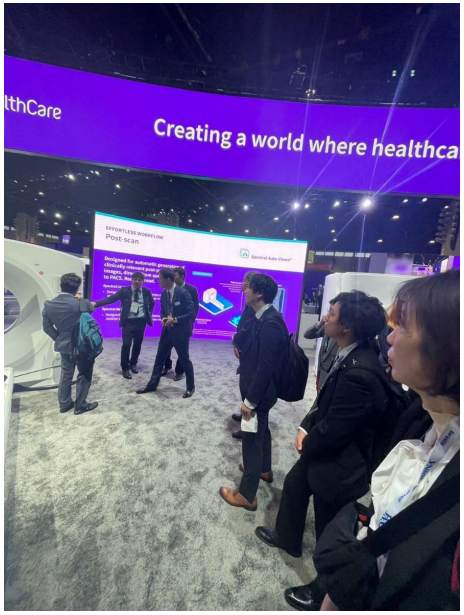

SHIMADZU
Excellence in Science
SHIMADZU

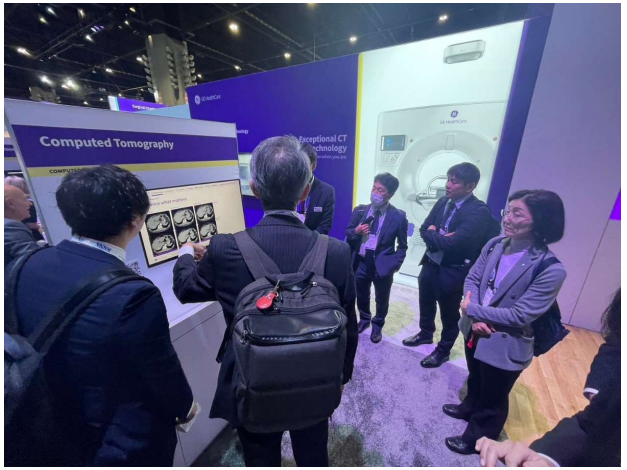

Customer experience with Spine Auto Views
GE HealthCare
Revolution


We need at least
enough room for


Meaningful innovation.
Made possible.
Made For life


Canon
Neusoft


Creating a world where healthca


Computed Tomography

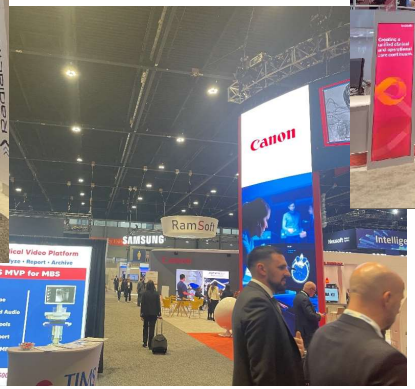

SIEMENS
Healthineers

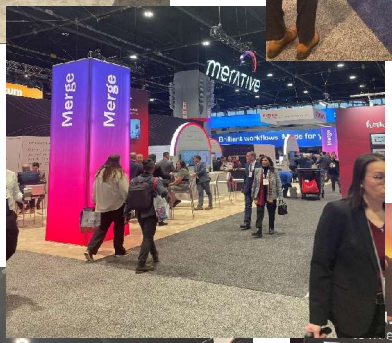

Meaningful innovation.
Made possible.
Made For life


FUJIFILM

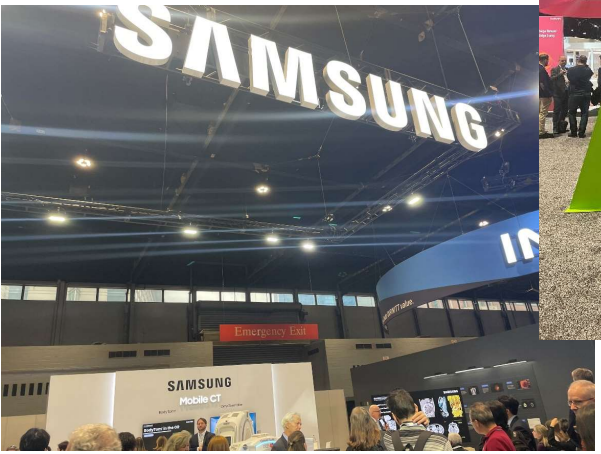

ALPINION


Medical

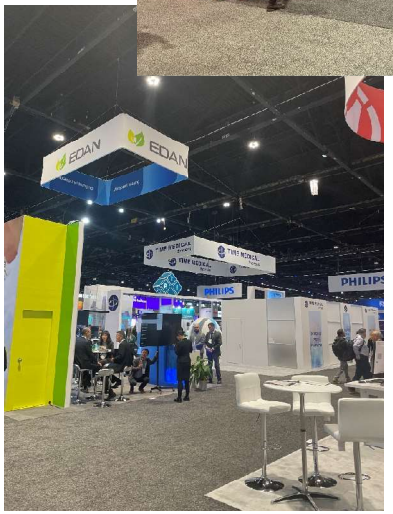

Canon
SAMSUNG


Merge
Merge

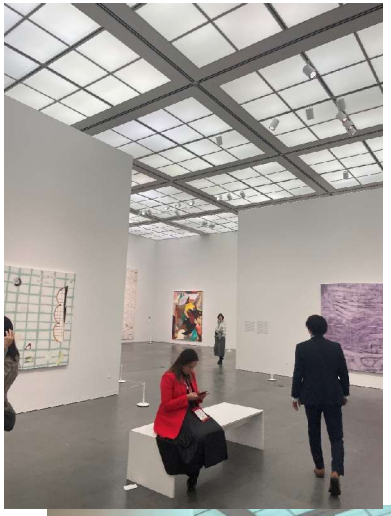

RSNA
SHOWCASE


SAMSUNG
Emergency Exit
SAMSUNG
Mobile CT

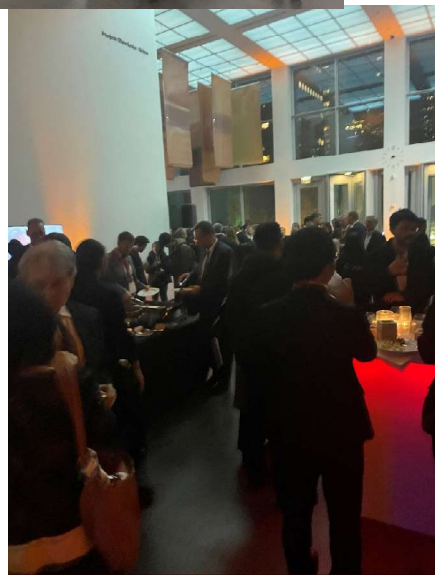

Optum
Optum


EDAN
EDAN
PHILIPS

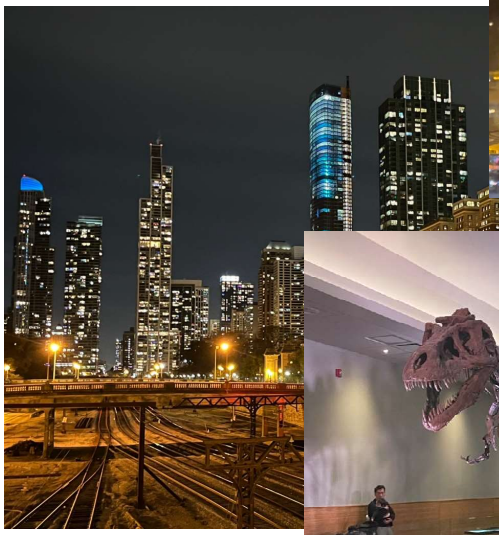
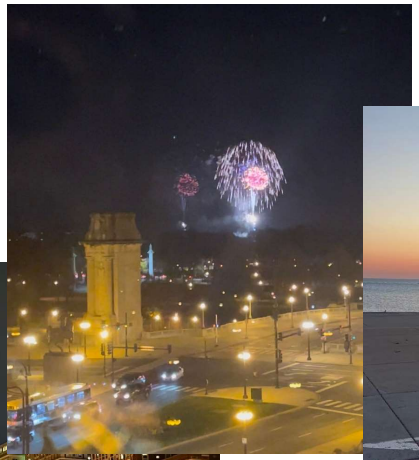
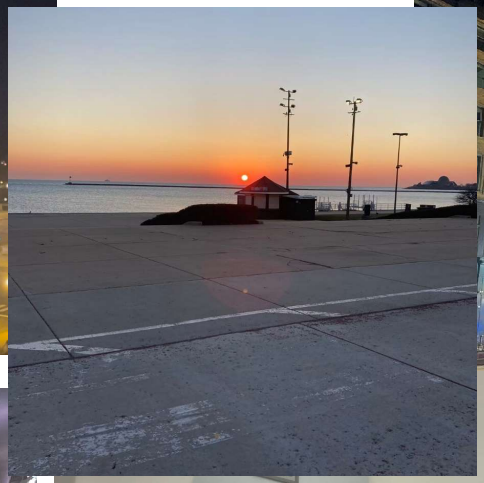
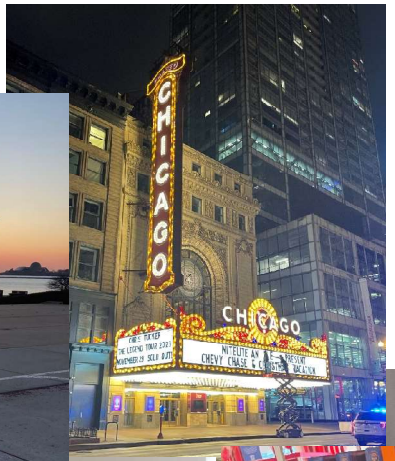

Canon
Welcome to
Canon Medical Event
CT/MRI

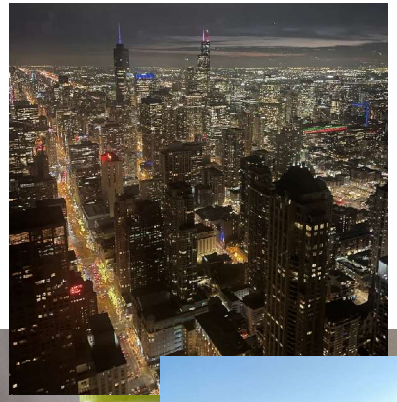



EXIT

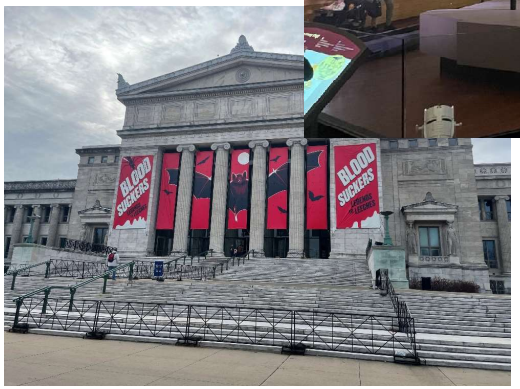


観光







RSNAの発表を経験して

- ●英語での抄録やスライドの作成
  ⇒時間と労力がとても必要、できないことに自己嫌悪
- ●英語での発表
  ⇒何を聞かれるか、どんな雰囲気か分からない不安と緊張
- ●学会発表の経験不足
  ⇒国内での発表経験が少ないことへの劣等感
- ●海外渡航
  ⇒海外に対する恐怖や心配

RSNAの発表を経験して

- 英語での抄録やスライドの作成
  - 慣れない作業で時間はかかったが、完成した時の達成感は大きい
  - 英語で整理することで、研究内容の理解度はより深まった
- 英語での発表
  - 海外の参加者はフレンドリーで、想像以上に話しやすい雰囲気
  - 完璧な英語でなくても、相手に伝えようとする姿勢が大切
- 学会発表の経験不足
  - 経験の有無よりも、自信を持って準備し臨むことが重要
  - 不安はあるが、やってみれば意外と何とかなる
- 海外渡航
  - 学会以外にも多くの刺激があり、非常に楽しい経験
  - 異文化に触れることで視野が広がり、満足感を得られる

まとめ

- 学会発表経験が乏しい私ですが、
国際学会への参加はできました！！！
- 抄録の作成やスライドの作成は、時間も労力も必要でした
特に英語という点がとても大変・・・
- 発表後の達成感やご褒美の観光、ごはんは最高でした！
- ぜひ、チャレンジしてみてください


ご清聴ありがとうございました
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